

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A frequency allocation method in a cellular radio communication system wherein a plurality of carriers provide radio communication services in overlapping service areas:

designating respectively allotted frequency bands of a ~~share~~ shared predetermined frequency band to each carrier, each frequency band having a plurality of communication frequency bands; and

allotting within the respectively allotted frequency bands, adjacent communication frequency bands which are adjacent to communication frequency bands allotted to other carriers to low power communications, and non-adjacent communication frequency bands which are not adjacent to communication frequency bands allotted to other carriers to high power communications.

2. (Original) A frequency allocation method in a radio communication system according to claim 1, where the high power communications comprise communications performed by high power mobile stations, and said low power communications comprise communications performed by low power mobile stations.

3. (Original) A frequency allocation method in a radio communication system according to claim 1, where the radio communication system comprises macrocells and microcells, said high power communications include communications performed by said macrocells and said low power communications include communications performed by said microcells.

4. (Original) A frequency allocation method in a radio communication system according to claim 1, where the high power communications comprise communications with a high demand quality and said low power communications comprise communications with a low demand quality.

5. (Original) A frequency allocation method for a radio communication system according to claim 1, comprising:

when among the frequency bands allotted to a carrier; the rate of use of said non-adjacent communication frequency bands is lower than a threshold value, allotting said non-adjacent communication frequency bands to communications regardless of whether they are high power communications or low power communications.

6. (Original) A frequency allocation method for a radio communication system according to claim 5, comprising:

allotting non-adjacent communication frequency bands to mobile communications when the mobile communication is initiated; and

when the rate of use of the non-adjacent communication frequency bands becomes greater than or equal to the threshold value, re-allotting the adjacent communication frequency to communications allotted to non-adjacent frequency bands.

7. (Original) A frequency allocation method for a radio communication system according to claim 5, comprising switching said threshold value on a network in response to communications traffic.

8. (Original) A frequency allocation method for a radio communication system according to claim 1, comprising allotting non-adjacent communication frequency bands including a communication frequency band being the highest and a communication frequency band being the lowest in a frequency band corresponding to that carrier to low power communications.

9. (Original) A cellular radio communication system where a plurality of carriers share a predetermined frequency band, and each carrier providing radio communication services in overlapping geographical areas using respectively allotted frequency bands of the predetermined frequency band, comprising:

a network side communication installation for each carriers including;
a frequency allocation means for, of the frequency bands allotted to that carrier, allocating to low power communications adjacent communication frequency bands which are adjacent to frequency bands allotted to other carriers, and allocating to high power

communications non-adjacent communication frequency bands which are not adjacent to frequency bands allotted to other carriers.

10. (Original) A radio communication system according to claim 9, where a base stations installed by each business comprises said frequency allocation means.

11. (Original) A radio communication system according to claim 9, where a mobile communication switching stations installed by each carrier comprises said frequency allocation means.

12. (Original) A radio communication system according to claim 9, comprising mobile stations and base stations for performing exchange of radio signals by means of a CDMA system.

13. (Original) A frequency allocation device provided in a network side communication installation of a cellular radio communication system in order to allocate designated frequency bands to a plurality of carriers, wherein each carrier provides radio communication services in overlapping geographical areas using respectively allotted frequency bands, each designated frequency having a plurality of communication frequency bands, and further to offer radio communication services using the frequency bands allotted to those carriers, comprising

means for, of the frequency bands allotted to that carrier, allocating to low power communications adjacent communication frequency bands which are adjacent to frequency bands allotted to other carriers, and allocating to high power communications non-adjacent communication frequency bands which are not adjacent to frequency bands allotted to other carriers.

14. (Original) A frequency allocation method for a radio communication system wherein a plurality of carriers provide radio communication services in overlapping geographical areas using respectively allotted frequency bands of a shared predetermined frequency band, each allotted frequency band having a plurality of communication bands, the method comprising:

within each allotted frequency bands, allotting non-adjacent communication frequency bands being a communication frequency band which is the highest and a communication frequency band which is the lowest in the frequency band corresponding to that carrier, to low power communications.

15. (New) A frequency allocation method in a cellular radio communication system wherein at least two carriers provide radio communication services in overlapping service areas, a first carrier assigned a first frequency range and a second carrier assigned a second frequency range, at least a part of the first and second frequency ranges being adjacent to one another, the method comprising:

determining a first transmission power for a first mobile station to communicate with at least a part of the first carrier;

determining a second transmission power for a second mobile station to communicate with at least a part of the second carrier;

determining whether to allocate communications with the first mobile station to the part of the first frequency range adjacent to the second frequency range based on the first transmission power; and

determining whether to allocate communications with the second mobile station to the part of the second frequency range adjacent to the first frequency range based on the second transmission power.

16. (New) The frequency allocation method according to claim 15, wherein the at least a part of the first carrier comprises a base station.

17. (New) The frequency allocation method according to claim 15, wherein determining whether to allocate communications with the first mobile station to the part of the first frequency range adjacent to the second frequency range comprises:

determining if the first transmission power is low power; and

if the first transmission power is low power, allocating communications with the first mobile station to the part of the first frequency range adjacent to the second frequency range, and

wherein determining whether to allocate communications with the second mobile station to the part of the second frequency range adjacent to the first frequency range comprises:

determining if the second transmission power is low power; and

if the second transmission power is low power, allocating communications with the second mobile station to the part of the second frequency range adjacent to the first frequency range.

18. (New) The frequency allocation method according to claim 15, wherein determining whether to allocate communications with the first mobile station to the part of the first frequency range adjacent to the second frequency range comprises:

determining if the first transmission power is high power; and

if the first transmission power is high power, allocating communications with the first mobile station outside of the part of the first frequency range adjacent to the second frequency range, and

wherein determining whether to allocate communications with the second mobile station to the part of the second frequency range adjacent to the first frequency range comprises:

determining if the second transmission power is high power; and

if the second transmission power is high power, allocating communications with the second mobile station outside of the part of the second frequency range adjacent to the first frequency range.

19. (New) The frequency allocation method according to claim 15, wherein the part of the first frequency range adjacent to the second frequency range comprises a first frequency band.

20. (New) The frequency allocation method according to claim 19, wherein at least a part of the frequency band is adjacent to the second frequency range.

21. (New) A frequency allocation device in a cellular radio communication system wherein at least two carriers provide radio communication services in overlapping service areas, a first carrier assigned a first frequency range and a second carrier assigned a second frequency

range, at least a part of the first and second frequency ranges being adjacent to one another, the device comprising logic for:

determining a first transmission power for a first mobile station to communicate with at least a part of the first carrier;

determining a second transmission power for a second mobile station to communicate with at least a part of the second carrier;

determining whether to allocate communications with the first mobile station to the part of the first frequency range adjacent to the second frequency range based on the first transmission power; and

determining whether to allocate communications with the second mobile station to the part of the second frequency range adjacent to the first frequency range based on the second transmission power.

22. (New) The frequency allocation device according to claim 21, wherein the at least a part of the first carrier comprises a base station.

23. (New) The frequency allocation device according to claim 21, wherein the logic for determining whether to allocate communications with the first mobile station to the part of the first frequency range adjacent to the second frequency range comprises logic for:

determining if the first transmission power is low power; and

if the first transmission power is low power, allocating communications with the first mobile station to the part of the first frequency range adjacent to the second frequency range, and

wherein the logic for determining whether to allocate communications with the second mobile station to the part of the second frequency range adjacent to the first frequency range comprises logic for:

determining if the second transmission power is low power; and

if the second transmission power is low power, allocating communications with the second mobile station to the part of the second frequency range adjacent to the first frequency range.

24. (New) The frequency allocation device according to claim 21,
wherein the logic for determining whether to allocate communications with the first
mobile station to the part of the first frequency range adjacent to the second frequency range
comprises logic for:

determining if the first transmission power is high power; and

if the first transmission power is high power, allocating communications with the
first mobile station outside of the part of the first frequency range adjacent to the second
frequency range, and

wherein the logic for determining whether to allocate communications with the second
mobile station to the part of the second frequency range adjacent to the first frequency range
comprises logic for:

determining if the second transmission power is high power; and

if the second transmission power is high power, allocating communications with
the second mobile station outside of the part of the second frequency range adjacent to
the first frequency range.